

# FACTSHEET

## *Veterinary Services*

United States  
Department of  
Agriculture

Animal and  
Plant Health  
Inspection  
Service

December 1992

## The Foreign Animal Disease Diagnostic Laboratory at Plum Island Animal Disease Center

Plum Island Animal Disease Center is a U.S. Department of Agriculture (USDA) facility devoted to diagnosing and researching foreign diseases of animals. Named for the beach plums that grow along its shores, Plum Island's ownership was transferred to the USDA's Agricultural Research Service (ARS) in 1954 to establish a laboratory to study foot-and-mouth disease (FMD) and other exotic animal diseases. The diagnostic activities at Plum Island were transferred from ARS to the Animal and Plant Health Inspection Service (APHIS) in 1983. Since then, under the administration of ARS, APHIS has maintained a foreign animal disease diagnostic laboratory (FADDL) on the island. Plum Island is the only location in the United States where infectious foreign animal disease agents can be studied. It is located 1 1/2 miles off the northeastern end of Long Island, NY.

The livestock population of the United States is susceptible to numerous foreign diseases, and an outbreak could have severe consequences for producers and consumers. FMD is the most infectious and economically devastating animal disease known and is found nearly worldwide. Based on a study conducted some years ago, if FMD became established in the United States, it would cost producers an estimated \$12 billion over a 15-year period and raise the cost of meat and dairy products by 25 percent. Such an outbreak would also have a tremendous effect on annual U.S. exports of animals and animal products, which in 1988 were valued at \$6.5 billion. The efforts of the FADDL are directed at keeping our livestock population free of devastating animal diseases.

### Functions of the FADDL

**Diagnosis of Foreign Animal Diseases.** APHIS scientists at the FADDL have the capability to diagnose more than 35 exotic animal diseases, and they perform thousands of diagnostic tests each year to detect the presence of foreign animal disease agents. The tissue and blood samples that are tested are submitted by veterinarians suspecting an exotic disease in domestic livestock or by animal import centers testing quarantined animals for foreign diseases. Samples are also submitted by animal health professionals in other countries who need help with a diagnosis.

**Training.** An integral part of the laboratory's mission is training animal health professionals in the recognition of foreign animal diseases. FADDL staff present several courses each year at Plum Island to give veterinarians, scientists, professors, and veterinary students the opportunity to study the clinical signs and pathological changes caused by foreign animal diseases. FADDL scientists also give presentations on foreign animal diseases throughout the United States and other countries.

**Reagent Production and Vaccine Testing.** Diagnostic reagents, such as antisera specific for foreign animal disease agents, are prepared at the FADDL and are distributed to laboratories throughout the world. FADDL employees also test the safety and efficacy of vaccines for selected foreign animal diseases.

**Developmental Work.** FADDL staff work to develop improved techniques for the diagnosis or control of foreign animal diseases. In recent years, FADDL scientists have developed such useful tools as a polymerase chain reaction for the detection of the FMD virus and a thermostable rinderpest vaccine.

**Custodian of the North American FMD Antigen Bank.** This bank stores concentrated FMD antigen that can be formulated into a vaccine if an FMD introduction occurs. The bank is owned by Canada, Mexico, and the United States. FADDL employees are responsible for safety and potency testing of new lots of antigen and periodic quality testing of stored antigen.

## **Biosecurity Measures and Human Safety**

Extensive biosecurity measures are taken on Plum Island to prevent the release of animal disease agents to the environment. Access to the island is restricted to employees and approved visitors, and ARS has guards stationed at strategic places on the island. The laboratories on Plum Island are biologically contained using a system that filters the air before it leaves the facility. Employees and visitors must dress in special clothes prior to entering the laboratory and must shower when going between rooms where different disease agents are present and before leaving the facility. Any materials leaving the laboratory are thoroughly fumigated, liquid waste is heated to high temperatures before disposal, and solid waste is incinerated.

The island has its own generator with a complete backup system. ARS employs skilled engineers to monitor the laboratories' air handling equipment and instrumentation to assure building biocontainment at all times. The island also has its own fire department, ambulance, and sewage treatment facility.

Infectious disease agents are always handled in biological safety cabinets to protect personnel from direct exposure. FADDL employees do not generally work with disease agents that can be transmitted to humans. On the rare occasions when they do, employees are immunized against the disease before the initiation of the study.

## **Additional Information**

Through diagnostic, research, and training activities, APHIS scientists at FADDL will continue to direct their efforts to keeping American livestock free from foreign animal diseases. For more information, write:

USDA-APHIS  
Room 750 Federal Building  
6505 Belcrest Road  
Hyattsville, MD 20782